

DIVISION OF MINES & GEOLOGY LIBRARY
TEACHER RESOURCE CENTER



ANNOTATED CATALOG



GRADES K THROUGH 12





DIVISION OF MINES AND GEOLOGY
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Introduction

The purpose of the Teacher Resource Center in the Division of Mines and Geology (DMG) Library is to help teachers teach Earth Science subjects. We offer a variety of resources, for loan, to California teachers of K-12 students.

The collection includes models, CD-ROMs, globes, kits, books, videos and audio tapes. The items were acquired with classroom teaching in mind. The emphasis is on material which includes teacher guides and classroom activities, such as that put out by the National Science Teachers Association. We have also acquired, for example, various large kits which would be expensive for teachers or schools to purchase on an individual basis, but which can now be borrowed and returned.

One example is Hubbard Scientific Company's Geology Models kit, which helps students learn basic concepts of geography and geology. It contains eight models that show typical topographic forms and their relation to underlying geologic structures. The study guide describes a number of projects and includes test questions on volcanism, glaciation, dome mountains, folded mountains and coastal plans.

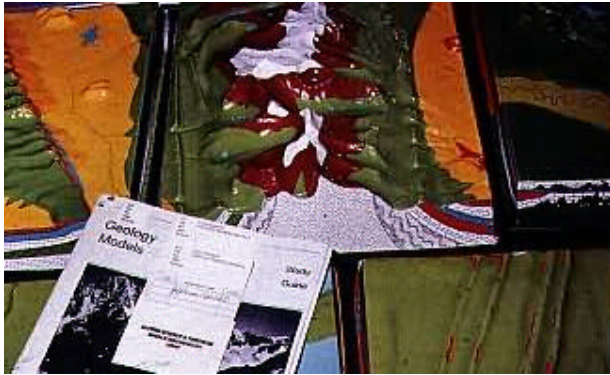


Photo (left). One of a number of teaching kits available for teachers to borrow from DMG's library. Photo by Max Flanery.

The Catalog is arranged by broad subject headings such as earthquakes, geology, maps, plate tectonics, rocks and minerals, and volcanoes. Within these categories, each item is listed by title. Non-book material is designated by media type, such as kit or video. Also included is a brief description and, where possible, grade level.

Items can be borrowed through the mail (see [Borrowing Agreement](#)) and teachers are also welcome to view the collection at the DMG Library at the address below.

The Teacher Resource Center has only recently been established. We hope to form a partnership with teachers, and plans are under way to establish a Teacher Advisory Group to help focus on teachers' primary needs. This is one way we can learn what resources are most useful to you. We would appreciate any [suggestions and comments](#) from teachers in the field.

Department of Conservation
Division of Mines and Geology Library
801 K Street, MS 14-34
Sacramento, CA 95814
(916) 445-5716
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BORROWING AGREEMENT

DIVISION OF MINES AND GEOLOGY LIBRARY

TEACHER RESOURCE CENTER

EARTH SCIENCES

GRADES K THROUGH 12

Teachers currently employed by an educational institution in California may borrow materials directly from this collection. Homeschoolers and parents may not borrow materials directly but may borrow books and videos by requesting an interlibrary loan through their public library.

BORROWING MATERIAL:

- Teachers who wish to borrow material must initially bring or mail a letter from a principal or administrator on school letterhead verifying employment in that school.
- Requests for material may be made in person at the library, by mail, telephone, or e-mail (cedwards@consrv.ca.gov). Material can be checked out of the library in person by the teacher or can be mailed.
- The teacher is responsible for all materials borrowed from the collection. Should an item be lost or broken, the teacher must replace that item.
- Items may be borrowed for three weeks with one renewal. If you wish to renew, please call (916) 445-5716 or e-mail (cedwards@consrv.ca.gov).

RETURNING MATERIAL:

- Material can be returned in person or mailed. If kits, etc. are returned by mail, they must be packaged properly.

SUGGESTIONS?

To make the Teacher Resource Center as useful as possible we would appreciate feedback from teachers in the field.

Let us know if you have any suggestions or comments. For example, items that you would like to see in the collection, or comments on a borrowed item that you found particularly useful.

Let us know if you are interested in being a member of a proposed Teacher Advisory Group.

Contact Lyn Roefs, Librarian, Division of Mines and Geology Library:

Telephone: (916) 327-2762

email: lroefs@consrv.ca.gov

AIR

Investigating air : organizing, analyzing, and interpreting information about the quality of air / McFall, Lauren. -- Arlington, Virginia: National Science Teachers Association, c1999.

69 p. : ill. ; 28 cm.

Provides the investigations and information that lead students to the answers to [air quality] questions. Students use data generated by researchers, and generate their own data, in situations analogous to real air quality issues. Includes teacher section and class activities.

HIGH SCHOOL.

ASTRONOMY

Model

Celestial globe [globe] -- Northbrook, Ill. Hubbard Scientific Co, c1973.

1 globe : col., plastic & metal ; 31 cm. in diam. + lesson plan (8 p. ; 28 cm.)

A model of the celestial sphere to teach the locations, names, and shapes of the constellations... demonstrates the relationship between earth and the stars, planets, galaxies, and other celestial objects in the universe... designed to show positions of the stars at any given time and date as seen from any location on earth... essentially a 3-dimensional star finder and not meant to show actual motions of earth, moon, and planets. All observations are earth-centered and therefore earth is located in the center of the globe.

Kit

Asteroid! : an event-based science astronomy module / Wright, Russell G. -- Menlo Park, Calif. Alternative Publishing Group, Addison-Wesley Pub. Co, 1994.

1 videocassette + 1 teacher's guide (32 p.)

An approaching asteroid is used as the focus of a 5-week astronomy unit. Explores the ellipticity of solar system orbits, ties earth to the family of planets, and develops an understanding of our planet's place in the solar system.

JR. HIGH.

CRATERS

Kit

Craters! : a multi-science approach to cratering and impacts / Hartmann, William K; Cain, Joe. -- Arlington, VA: National Science Teachers Association, c1995.

xiv, 225 p. : ill., maps ; 28 cm. + 1 computer laser optical disc.

The book includes 20 ready-to-use, hands-on activities that use cratering to teach key concepts in physics, astronomy, biology, and earth sciences. Can be a whole curriculum or presented in smaller units. Although the book can be used alone, the accompanying CD-ROM is for the reproduction of high-quality images. System requirements: Macintosh LC III or higher; system 7.0 or higher; double-speed CD-ROM; gray scale or color monitor System requirements: PC 386 33Mhz; 4Mb RAM; Microsoft Windows; double speed CD-ROM; gray scale or color monitor.
MIDDLE-HIGH SCHOOL.

DESERTS

Desert / Sayre, April Pulley. -- 1st ed. -- New York: Twenty-First Century Books, 1994.

64 p. : col. ill., col. map ; 24 cm.

Chapters: The desert biome -- Desert in North America -- Desert weather, climate, and geology -- Desett plants -- Desert animals -- Desert communities -- People and the desert -- Resources and what you can do to help.

UPPER ELEMENTARY-JR. HIGH.

EARTH SCIENCE

Earth science investigations : edited by Margaret A. Oosterman and Mark T. Schmidt / Oosterman, Margaret A. -- Alexandria, Va. American Geological Institute, 1990.

231 p. : ill. ; 28 cm.

26 classroom-tested research activities developed by teachers. Each hands-on exercise provides the concepts, vocabulary, and worksheets students will need to complete it.

GRADES 8-12.

Geoscience education and training : in schools and universities, for industry and public awareness / Stow, D. A. V. (Dorrick A. V.); McCall, G. J. H. -- Rotterdam ; Brookfield, VT: A.A. Balkema, 1996.

xix, 855 p. : ill. ; 25 cm.

Articles on international overview of geoscience education. Includes: Hoff, D.B., Elementary and secondary earth science in the USA, p. 173-182.

Project earth science : geology / Ford, Brent A. -- Washington, D.C. National Science Teachers Association, c1996.

213 p. : ill. ; 28 cm.

A collection of hands-on activities and a series of readings. Built upon the unifying theory of plate tectonics... explores how this concept can be used to explain the occurrences of volcanoes, earthquakes, and other geologic phenomena... links to rock and mineral types and the rock cycle.

MIDDLE SCHOOL.

Earth at hand : a collection of articles from NSTA's journals / Stroud, Sharon M; Callister, Jeffrey C. -- Washington, D.C. National Science Teachers Association, c1993.

ix, 165 p. : ill. ; 28 cm.

A selection of the best teacher-devised classroom strategies from the past decade from National Science Teacher Association's journals to help teach concepts of geology, meteorology, astronomy, and oceanography. Each article gives resources to plan a lesson, a unit, or a curriculum.

GRADES 5-10.

Understanding our changing planet : NASA's Mission to Planet Earth : fact book -- [Washington, D.C.?] National Aeronautics and Space Administration, 1995.

16 p. : ill. ; 28 cm.

Booklet on NASA's program called Mission to Planet Earth (MTPE) which uses the unique perspective available from space to better understand environmental changes and to distinguish between natural changes and human-induced changes.

More information on the Internet at the MTPE home page:

<http://www.hq.nasa.gov/office/mtpe>.

CD-ROM

Teaching earth science [computer file] / Alpha, Tau Rho. -- [Menlo Park, Calif.] U.S. Geological Survey, 1998.

1 computer laser optical disc ; 4 3/4 in.

Offers seventeen teaching tools covering geologic processes, earthquakes and faulting, and map projections and globes. Includes printable Earth and Tectonic Globes section.

EARTH SCIENCE—EXPERIMENTS

Janice VanCleave's earth science for every kid : 101 easy experiments that really work / VanCleave, Janice Pratt. -- New York: John Wiley, c1991.

xiv, 231 p. : ill. ; 24 cm.

Instructions for experiments, each introducing a different earth science concept.

Water, stones & fossil bones : earth science activities for elementary and middle level

grades / Lind, Karen. -- Washington, DC: National Science Teachers Association, c1991.

xi, 125 p. : ill. ; 28 cm.

Teachers contribute their favorite earth science activities. In addition to providing teacher-tested, hands-on activities this book "stresses the teacher's role in selecting appropriate activities and asking questions that guide students to higher-order thinking. Questions to ask during the activity are suggested in margin notes, as are such teaching strategies."

Chapters: Space -- Land -- Water -- Air -- The Earth's Past.

ELEMENTARY- MIDDLE SCHOOL.

EARTHQUAKES

Earthquake / Dudman, John. -- New York: Thomson Learning, 1993.

32 p. : col. ill. ; 28 cm.

Describes the causes and effects of earthquakes... examines the destructive power of historic and modern earthquakes, and explains how scientists use tools to predict them. Includes related projects.

Video

The Hayward fault - we can't ignore it; a video tape / Hirschfeld, Sue Ellen. / U.S. Geological Survey. -- Menlo Park, Calif. U.S. Geological Survey, [1996]

1 videocassette (62 min.): sd., col. ; 1/2 in. + teacher's guide (5 p.)

Aimed at a general interest audience, including students from middle school to college. Can be used to teach about earthquakes, faults, and the impact on society when a damaging earthquake occurs in a populated area. Topics include fault-related landforms, fault creep, the fault plane at depth, relationship between creep and fault rupture. It does not discuss plate tectonics nor the "ring of fire" around the Pacific Ocean. Instead it focuses on the features and science of a particularly dangerous fault and is thus complementary to other earthquake videos.

MIDDLE SCHOOL-HIGH SCHOOL.

Shock waves through Los Angeles : the Northridge earthquake / Vogel, Carole Garbuny. -- 1st ed. -- Boston: Little, Brown and Co. c1996.

32 p. : col. ill., col. maps ; 27 cm.

Examines the causes of the 1994 Northridge earthquake in southern California and describes the devastating effects of the quake.

Video

Killer quake [videorecording] -- Boston, Mass. WGBH Boston Video, 1994.

1 videocassette (60 min.) : sd., col. ; 1/2 in.

Originally broadcast on PBS as an episode of NOVA. Metropolitan Los Angeles is sitting on ground zero, and even as southern California struggles to repair itself from the tragedy at Northridge, seismic pressure continues to build below the ground. NOVA examines whether we can learn enough about these geological mysteries in time to minimize widespread destruction. VHS.

Video

Earthquake preparedness [videorecording] / Perez, Bill. -- [Los Angeles, CA] Hanna-Barbera Productions, c1990.

1 videocassette (5:30 min.) : sd., col. ; 1/2 in.

Uses animated cartoon figure, Yogi Bear, to discuss preparedness and precautions for the home and neighborhood.

ELEMENTARY GRADES.

Model

Seismograph model [model] / Jones, Daniel J. (Daniel John) -- Chippewa Falls, WI: Hubbard, 1967.

1 model : metal and plastic ; in box 18 x 23 x 23 cm.

Accompanied by Lesson plan.

Video

Earthquakes [videorecording] : understanding the hazards / Prose Doug; Saperstone, Herb; Miller, Eric. -- Fort Collins, CO: Scott Resources, c1994.

1 videocassette (21 min.) : sd., col. ; 1/2 in + teacher's guide.

Discusses physical occurrences below the earth's surface during an earthquake, identifies the type of waves generated by underground rock slippage, investigates above-ground effects of earthquakes, explains how quakes are measured and recorded, and identifies earthquake-prone areas in the world.

GRADES 7-12.

Kit

Earthquake! [kit] : an event-based science module / Wright, Russell G. -- Menlo Park, Calif. Innovative Learning Publications, Addison-Wesley Pub. Co, c1996.

1 videocassette (25 min.), 1 teacher's guide (30 p.)

Video entitled "The Big Story: the quake of '89" with news coverage of the Loma Prieta earthquake in 1989, is the "hook" to get students interested. Teacher's Guide includes class activities Where earthquakes are found -- Liquefaction -- Earthquake-resistant building designs --

Earthquake engineering
MIDDLE- HIGH SCHOOL.

The Loma Prieta earthquake of October 17, 1989 : a brief geologic view of what caused the Loma Prieta earthquake and implications for future California earthquakes: what happened ... what is expected ... what can be done / Ward, Peter L. -- [Washington, D.C.] U.S. Geological Survey, 1990.
16 p. : ill., maps ; 22 x 28 cm.

EMERGENCY PREPAREDNESS

Video

Adventures of the Disaster Dudes (videorecording) -- [Washington, D.C.] FEMA : American Red Cross, [1993?]
Designed to educate children about safety measures in the event of a natural disaster.

Kit

Emergency preparedness : classroom activities - Grades K-6 / Utah Seismic Safety Commission. -- [Farmington, Utah] Utah Seismic Safety Commission, [1999]
1 v., various paging.
Loose-leaf binder prepared by the Schools Subcommittee, Utah Seismic Safety Commission. Although a Utah resource, much of the information could be applied to any state. Sections include: Resources -- Tips for Teachers. Also includes an earthquake safety board game and a Children's Television Workshop audio cassette featuring "Elmo and the Earthquake" (K-3) and a song about finding safety spots, "Beatin' the Quake" (K-6)
GRADES K- 6.

Kit

Emergency preparedness : classroom activities - Grades 7-12 / Utah Seismic Safety Commission. -- [Farmington, Utah] Utah Seismic Safety Commission, [1999]
1 v., various paging.
Loose-leaf binder prepared by the Schools Subcommittee, Utah Science Safety Commission.
Although a Utah resource, most of the information could be applied to any state. Sections include: Resources -- Tips for teachers -- Hazard identification.
MIDDLE-HIGH SCHOOL.

GEOLOGY

Video

The Earth has a history -- Boulder, CO: Geological Society of America, c1989.

1 videocassette (20 min.) : sd., col. ; 1/2 in. + 1 guide ([10] leaves : maps ; 28 cm.)

In this study module, A. R. Palmer demonstrates the simple principles that form the basis for understanding geologic time, literally "walking the viewer through time" in the colorful Flatirons area of the Rocky Mountain Front Range near Boulder, Colorado.

JR. HIGH-HIGH SCHOOL.

CD-ROM

GEODe [interactive multimedia] : geologic explorations on disk / Tarbuck, Edward J; Lutgens, Frederick K; Tasa, Dennis. -- Upper Saddle River, NJ: Prentice-Hall, c1996.

1 computer laser optical disk : col. ; 4 3/4 in.

Designed as an interactive learning experience for beginning geology students, GEODe provides exercises and activities that allow the user to examine and review important facts and concepts. Animations, illustrations and photographs accompany the explanations; many sections are also appropriate for use by instructors in classroom demonstrations. System requirements: For Macintosh: Macintosh with 256 color graphics; 13" or larger display (640 x 480 or higher); CD-ROM double-speed drive; 4 MB free RAM memory; System 6.0.7 or newer. For Windows: IBM compatible 386 or better; SVGA (256 colors in 640 x 480); CD-ROM double-speed drive; 4 MB RAM (8 MB suggested); Windows 3.1 (enhanced mode) or Windows 95.

Geology fact book / Boyer, Robert Ernst; Snyder, P. B. -- Northbrook, Ill. Hubbard Press, c1986.

48 p. : ill., maps : 26 cm.

Describes the origin and age of the earth, its composition and physical properties, the forces that change it, and the significance of its fossils.

Kit

Geology Transparencies (kit) -- Northbrook, Ill. Hubbard Scientific Co, 1984.

6 transparencies (with attached overlays) : col. + 1 teacher's guide.

Volcano -- Folded mountain -- Fault mountain -- Alpine glacier -- Rock cycle -- Geologic time. Teacher's guide includes follow-up activities.

Convection, a current event : teacher's guide / Gould, Alan. -- Reprinted with revisions. -- Berkeley, Calif. Great Explorations in Math and Science (GEMS), Lawrence Hall of Science, University of California, 1996, c1988.

42, [10] p. : ill. ; 28 cm.

Teacher's guide with class activities. Session 1: Observing convection in

water -- Session 2: Getting the whole picture -- Session 3: Convection and wind. Explains convection inside the earth as it relates to magma flow and continental drift.

GRADES 6-9.

Kit

Earth history model [kit] / Jones, Daniel J. (Daniel John) -- [s.l.] Hubbard Scientific Co, 1967.

19 fossils : plastic ; in box, 27 x 16 x 3 cm. + 1 teacher's guide.

A molded plastic panel in sculptured relief represents the general geologic column for North America. Divided into eras and periods, the panel contains numerous recessed areas into which are fitted plastic replicas of representative fossils to illustrate various aspects of past life on earth. Teacher's guide includes class activities.

GRADES 6-12.

Kit

Geology demonstration kit [kit] / Pacilio, James V. -- Northbrook, Ill. Hubbard, 1965.

1 demonstration tray, 3 pieces col. flexible foam, 3 simulated cardboard rock formations, 1 model erupting volcano, 4 pieces rigid foam + 1 instruction sheet + 1 study guide ; in container 70 x 47 x 8 cm.

Permits students at all levels to visualize the causes and forces that shape the earth's surface. Landform-building actions of volcanoes, folding, and faulting can be demonstrated: provides a basic geologic understanding for elementary students, and more complex subjects for the advanced student.

Kit

Hubbard landform study program [model] / Lewis, Robert B; White, George W. -- Northbrook, Ill. Hubbard, c1969.

landform models (8 pieces) + 1 lesson plan booklet + 1 student lab investigations booklet + 7 audio tapes; in box, 33 x 48 x 27 cm.

The models are designed to present the basic concepts of geography and geology. Eight separate landform models form a single, 3 ft. x 3 ft. tri-dimensional model of mountains, lakes, rivers, deserts, glaciers, coastlines, canyons and cultural points of interest for field trip excursions conducted in the classroom via audio tapes. The Lab Investigations booklet includes one investigation for each landform.

Kit

Geology models [model] / Lewis, Robert B. -- Northbrook, Ill. Hubbard, c1963.

8 models : polystyrene, col. + 1 study guide "Geology Models"

[35 p.]

The 8 models show typical topographic forms and their relation to underlying geologic structures: 1. Coastline of submergence -- 2.

Volcanism -- 3. Fault block mountains -- 4. Alpine glaciation-- 5. Dome mountains -- 6. Continental glaciation -- 7. Folded mountains -- 8.

Coastal plain.

Kit

Volcanoes, dinosaurs, & fossils [kit] -- rev. 1997. -- Salt Lake City, UT: Wild Goose Co. 1997.

8 samples of volcanic rocks, 4 plastic fossils, 1 fossilized insect, chemicals + 1 instruction booklet.

A series of hands-on activities that introduce students to basic geology.

Includes experiments to make plaster fossils, fumarole gas, and simulate a geyser.

ELEMENTARY GRADES.

Kit

Our amazing colliding continents : earth science kit / Crowell, Caleb. -- New York, NY: Educational Design, 1997.

2 snap-together plastic globes + 1 flipbook + world map with 4 overlays + 5 rock samples in plastic bag + 1 instructional booklet.

Activities include plate tectonics and rock formation

ELEMENTARY GRADES.

Stone wall secrets / Thorson, Kristine; Thorson, Robert M; Moore, Gustav, ill. -- Gardiner, Me. Tilbury House, 1998.

20 leaves : ill. col. ; 28 cm.

As he and his grandson walk along the stone walls surrounding his New England farm, an old man shares stories about the geologic history of the stones as well as some of the memories they hold for him. There is a companion Teacher's Guide "Stone wall secrets, exploring geology in the classroom, teacher's guide".

GRADES 3-7.

Stone wall secrets : exploring geology in the classroom, teacher's guide / Deike, Ruth; Thorson, Kristine. Stone wall secrets; Thorson, Robert. Stone wall secrets. -- Gardiner, Maine: Gardiner, Maine : Tilbury House, c1998.

vi, 90 p. : ill. ; 28 cm.

Companion to "Stone Wall Secrets". Explores themes such as the origin

of the universe; the rock cycle; and why the woolly mammoth became extinct.
GRADES 3-7.

HYDROLOGY

Earth : the water planet / Gartrell, Jack E; Crowder, Jane; Callister, Jeffrey C. -- Rev. ed. -- Arlington, Va. National Science Teachers Association, c1992.

x, 191 p. : ill., maps ; 28 cm.

Chapters: Can water move through solid rock? -- What makes clouds? --
How do streams move through mountains? -- Why is the ocean salty?
Includes activities and experiments.
MIDDLE GRADES.

MAPS & GLOBES

Maps and globes / Knowlton, Jock. -- New York: Thomas Y. Crowell, 1985.

42 p. : ill., col. ; 25 cm.

Aimed at readers in the elementary grades, maps and map-making is explained in simple language, and this book could also be used by teachers to explain such concepts as scale - "How to put big countries on small pieces of paper"; and how "maps put our round earth on flat paper".

ELEMENTARY GRADES.

Globe

Physiographic relief globe [globe] -- Northbrook, Ill. Hubbard Scientific Co. c1964, updated 1983.

1 model (2 parts) : plastic ; in box 39 x 39 x 24 cm. + 1 overlay disk, 1 study guide, 1 stand.

Overlay disk shows inner core, outer core, mantle and atmosphere of earth.

CD-ROM

A topographic field trip of Washington, D.C -- Washington, D.C. U.S. Geological Survey, 1996.

1 computer laser optical disc : sd., col. ; 4 3/4 in.

Students learn how to examine spatial information and relate it to real-world features by taking a multimedia tour of the Nation's Capital.

MIDDLE SCHOOL.

The map projection model. [Model] -- Northbrook, Ill. Hubbard Scientific Co, c1963.

1 model : col. ; 29x21x21 & 3 maps and guide.

Includes a terrestrial globe with 3 transparent maps representing cylindrical, conical and azimuthal projections.

How to teach with topographic maps / Van Burgh, Dana; Lyons, Elizabeth N; Boyington, Marcy. -- Arlington, Va. National Science Teachers Association, c1994.

23 p. : ill. (some col.) ; 28 cm.

1st section provides an overview and background info for the teacher;

2nd section has classroom activities to help teach topo map skills, including how to use topo maps for environmental studies.

USGS 7.5 minute series topographic map, folded to 18 x 27 cm., stapled into center of book.

MIDDLE-HIGH SCHOOL.

A teacher's guide to the San Francisco Bay Area geophysics maps (U.S. Geological Survey GP-1006 and GP-1007) / Langenheim, Victoria E; Gordon, Leslie. -- [Reston, Va.?] U.S. Geological Survey, [1995?]

35 p. : col. ill., maps : 28 cm.

The booklet is a teacher's guide to the U.S. Geological Survey maps that show gravity and magnetic data in contour form superimposed on a LANDSAT satellite image of the San Francisco Bay area... describes how gravity and magnetism help "see" beneath the earth's surface. Helps teachers formulate exercises.

The two USGS maps can also be borrowed.

HIGH SCHOOL.

METEORITES

Meteorites / Hutchison, Robert; Graham, Andrew. -- New York: Sterling Pub, 1993.

60 p. : ill. (some col.) ; 20 cm.

Good primer on meteorites, including their origin and the different specimens which have been found.

JR. HIGH-HIGH SCHOOL.

OCEANS

Ocean / Sayre, April Pulley. -- 1st ed. -- New York: Twenty-First Century Books, 1996.

80 p. : col. ill. ; 24 cm.

Chapters: The ocean biome--World's oceans--Physical features of oceans--Ocean life--Animal adaptations and diversity--People and oceans.

UPPER ELEMENTARY-JR. HIGH.

PALEONTOLOGY

A nest of dinosaurs : the story of Oviraptor / Norell, Mark. -- New York: Doubleday, c1999.

42 p. : col. ill. ; 23 x 29 cm.

Discusses how the authors became paleontologists and describes their expeditions to the Gobi Desert in Mongolia and the important fossils they found there.

The tiniest giants : discovering dinosaur eggs / Dingus, Lowell. -- New York, N.Y. Random House, c1999.

42 p. : ill. (some col.), col. map ; 22 x 29 cm.

Describes the efforts of paleontologists to arrange an expedition to search for dinosaur fossils in the inhospitable region of Patagonia in southern South America.

PLATE TECTONICS

This dynamic earth : the story of plate tectonics / Kious, W. Jacquelyne; Tilling, Robert I. -- Washington, D.C. U.S. Geological Survey, [between 1994 and 1996]

77 p. : ill. (some col.), maps (some col.) ; 22 x 28 cm.

Also available via Internet from the USGS web site at <http://pubs.usgs.gov/publications/text/dynamic.html> http
MIDDLE-HIGH SCHOOL.

Video

Plate tectonics (videorecording) : the puzzle of the continents / Saperstone, Herb I. -- Ft. Collins, CO: Scott Resources, 1990.

1 videocassette (18 min.), (VHS) : color ; 1/2 in + 1 teacher's guide.

ROCKS & MINERALS

Industrial minerals : How they are found and used / Bates, Robert Latimer, 1912. -- Hillside, N.J. Enslow Publishers, 1988.

64 p. : ill. ; 23 cm.

Describes mineral resources used in such industries as agriculture, printing, and glassmaking, and explains the discovery, mining, and exploitation of deposits.

JR. HIGH-HIGH SCHOOL.

Glass: its many facets / Kolb, Kenneth E.; Kolb, Doris K. -- Hillside, N.J. Enslow Publishers, 1988.

64 p. : ill. ; 23 cm.

Kit

Introductory earth science collection [kit] -- Fort Collins, CO : Burlington, NC: Scott Resources ; Carolina Biological Supply [distributor] c1985.

1 set of rocks and minerals (75 specimens) ; in box, 50 x 28 x 4 cm. + 1 guide + 1 magnifying glass + 1 nail + 1 magnet + 2 unlabelled specimens.

Provides an introduction to rocks and minerals. Includes specimens of sedimentary, igneous, and metamorphic rocks, ores of metals and nonmetals, and minerals.

CD-ROM

California gold mines : a sesquicentennial photograph collection / Guerin-Place, Rosemary; Roefs, Lyn; Twomey, Kathleen. -- Sacramento, CA: California Dept. of Conservation, Division of Mines and Geology, c1998.

1 computer laser optical disc ; 4 3/4 in.

Contains 300 black and white scanned photographs from the Division of Mines and Geology library collection. The photographs, taken between 1852 and 1984, depict California gold mines, mining techniques, and mining equipment. Also includes a California historic gold mines map. Searching can be done by name of mine, county, photographer, subject and year, or by a county map search.

System requirements: Windows 3.1, 95 or NT. IBM compatible 386 or higher PC.

MIDDLE-HIGH SCHOOL.

Kit

Common ground : modern mining and you --- -- [Peoria?, IL] Caterpillar Inc, c1992.

1 videocassette (26 mins.) + 1 teacher's guide (50 p. ; 23 cm.)

Discusses current mining practices and products.... strives to show an understanding of society's demand for minerals and the need for environmental protection.

Lesson Plans: Minerals and the products of mining -- Reclamation and recycling -- Modern mining in a changing world -- Careers in mining -- Economics.

The video is divided into different segments so teachers can stop and start as time and lesson plans dictate.

UPPER ELEMENTARY-HIGH SCHOOL.

Crystal & gem / Symes, R. F. (Robert F); Harding, R. R. Dorling Kindersley in association with The Natural History Museum, London, 1991.

64 p. : col. ill. ; 28 cm.

Non-technical, with many excellent color photographs illustrating, for example, the color, identification and twinning of crystals.

Mighty minerals : a teaching unit for the 4th grade classroom. -- Anchorage: U.S. Bureau of Mines, Alaska Technology Transfer Office, c1989.

50 p. : ill. ; 28 cm.

Students will learn the basic characteristics of some 20 featured minerals. Lessons focus on specific facts, applications, and/or current issues related to each mineral. Includes suggested activities, evaluation.
4TH GRADE.

Mined it! : a fairy tale with mineral content / Harris, Jeanette M; Harben, Peter. -- Morris, NY: Butternut Books, [1992?]

54 p. : ill. ; 28 cm.

Mark and Victoria Kool meet the Magic Mineral Man who reveals to them how minerals and mineral products are so much a part of their everyday lives and activities. Includes word drills.
ELEMENTARY GRADES.

Out of the rock : integrated learning activities for students / National Energy Foundation (U.S.) -- Salt Lake City, Utah : Washington, D.C. National Energy Foundation ; U.S. Bureau of Mines, [1994?]

80 p. : ill. ; 27 cm.

"A mineral resource education guide for teachers...". Includes activities and instructional activities, Levels I-III. Chapters: Minerals, Mineral Resources, Exploration, Processing, Mining Industry, Mining and the environment, Mineral Resource Economics, Safety.
ELEMENTARY-JUNIOR HIGH.

Video

The Rock cycle [videorecording] / Miller, Eric. -- Fort Collins, CO : Glenview, IL: Scott Resources ; [distributed by] Crystal Productions, 1990.

1 videocassette (18 min.) : sd., col. ; 1/2 in. + 1 teacher's guide.

Unravels the geologic processes which create, change and break down earth materials, as geologist Eric Miller takes the viewer on a field trip through the Rocky Mountains. The three major rock groups are defined using examples from mountain outcrops and streamside sediments. The brochure-sized teacher's guide fits inside the video cover, and includes discussion points and class activities.

Stories in stone : teacher's guide / Cuff, Kevin. -- Berkeley, CA: LHS GEMS, 1995.

156 p. : ill. ; 28 cm.

Includes classroom activities. Concepts explored: Rocks and minerals -- Applying standard methods of a classification -- Sedimentary, igneous and metamorphic rocks -- Erosion and deposition -- Melting and crystallization -- Crystal shapes -- Earth processes -- The rock cycle. GRADES 4-9.

Kit

Gold Rush! : an event-based science module / Wright, Russell G. -- Palo Alto, CA: Dale Seymour Publications, 1997.

1 videocassette (6 min. : 1/2 in.) + 1 teacher's guide (76 p.)

Uses the California Gold Rush of 1849 as the focus of a five-week study of rocks and minerals. "Secrets of the Gold Rush", is a 6-minute videotape produced by Montgomery County Public Schools which depicts the actual discovery of gold that led to the Gold Rush. Text includes science as well as interdisciplinary activities.

GRADES 6-9.

Video

Minerals [videorecording] : building blocks of the Earth -- Fort Collins, CO: Scott Resources, c1992.

1 videocassette (19 min.) : sd., col. ; 1/2 in. + 1 teacher's guide ([4] p. ; 18 cm.)

Discusses how geologists collect and identify the many different minerals found in the earth's crust.

Kit

Rock cycle, model activity set : [kit] / Miller, Eric. -- Chippewa, WI: Hubbard Scientific Co. c1995.

1 plastic relief model with clear plastic overlay : col. ; 45 x 60 cm. + 1 teacher's guide (10 p. ; 28 cm.) in notebook (30 cm.) + 2 hanger tabs + 1 marker + 19 small rock specimens (4 in plastic containers)

3-dimensional model with coordinating rock specimens to help students understand the rock cycle. The kit can be used as a demonstration aid, a lab station for small groups, or an enrichment research project.

CD-ROM

The photo-atlas of minerals for Windows [computer file] -- Version 1.1. -- Los Angeles: Los Angeles County Museum of Natural History, 1998.

1 computer optical disc ; 4 3/4 in.

Contains descriptive data for all known minerals, including color images, name pronunciations, name origins, crystal forms, localities

with maps, and Strunz mineral classification.

ROCKS & MINERALS—TEACHER WORKSHOPS

Teachers workshop on California mining / Victor Valley Museum. -- Victor Valley College, CA: 1996.

1 v. various pagings.

Loose-leaf binder containing the background information and class activities presented at a workshop for elementary, middle school and high school teachers. Includes activities and worksheets.

Mineral education activities - Elementary / Mineral Education Conference. 1997. -- [Sacramento, CA] [Mineral Education Conference] 1997.

v. 1 of a 2 vol. set

Loose-leaf binder containing the background information and class activities presented at a teacher workshop at the 1997 Mineral Education Conference. Sections include: Mineral Uses, Mineral Properties, Mineral Processing, Geology and Exploration, Mining and Environmental Activities, Mining Economics.
ELEMENTARY GRADES.

Mineral education activities - Jr. High/High School / Mineral Education Conference. 1997. -- [Sacramento, CA] [Mineral Education Conference] 1997.

v. 2 of a 2 vol. set.

Loose-leaf binder containing the background information and class activities presented at a teacher workshop at the 1997 Mineral Education Conference. Sections include: Mineral Uses, Mineral Properties, Mineral Processing, Geology and Exploration, Mining and Environmental Activities, Mining Economics..
JR. HIGH-HIGH SCHOOL.

Mineral education : High school -- Littleton, CO: SME Foundation for Public Information and Education, 1991.

1 v. (looseleaf) : ill. ; 29 cm.

A packet developed by the Education Committee of the Nevada Mining Association with assistance from a number of Nevada teachers.
HIGH SCHOOL

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VOCATIONAL GUIDANCE

Video

Careers for geoscientists (videorecording) / Mably, Collin; Milling, Marcus E.; Karlen, Jane; Keane, Christopher M. -- [Alexandria, VA.] American Geological

Institute, c1998.

1 videocassette (41 min.) : sd., col. ; 1/2 in.

To inspire college and high school students to pursue careers in the earth sciences, the video introduces the wide scope of careers in the geosciences, encompassing the atmosphere, the oceans, and the solid earth. A valuable resource for students who are interested in the earth sciences but need a description of real life jobs. Features on the job interviews with geologists and other earth science professionals.

HIGH SCHOOL.

Careers in the minerals industry : a guide for students, parents and teachers --

Littleton, CO. Society for Mining, Metallurgy, and Exploration Inc. 1999.

15 p. : ill. ; 22 cm.

Explores opportunities in geology, mining, mineral processing, environment, health and safety.

VOLCANOES

Volcano / Dudman, John. -- New York: Thomson Learning, 1993.

32 p. : col. ill. ; 28 cm.

Describes what volcanoes are, why they occur, and volcanic eruptions in history. Includes a project to build a paper mache volcano that erupts.

Video

America's deadliest volcanoes [videorecording] -- Chicago, IL: Questar, Inc, 1999.

1 videocassete (ca. 55 min.) : sd., col. ; 1/2 in.

Features 16 North American volcanoes. "Each waits patiently to explode and mankind can only stand helpless before these lethal timebombs.

Spectacular photography captures the fiery forces ignited by these cauldrons of chaos, which include Mt. St. Helens and Mt. Ranier (Washington); Crater Lake and Mt. Hood (Oregon); Mt. Shasta and Lava Beds National Monument (California); Katmai (Alaska); Kilauea, Mauna Loa, Haleakala (Hawaii); and Yellowstone National Park (Wyoming, Montana, and Idaho)."

Make your own paper model of a Volcano / Alpha, Tau Rho; Gordon, Leslie C. --

Menlo Park, CA: U.S. Geological Survey, [1991]

[3] p. : ill. ; 28 cm.

Instructions and a pattern for making a three-dimensional paper model of a volcano, to help students visualize a stratovolcano and to learn some of the terms used by geologists. Includes a one page "Educator's Guide".

Kit

Volcano! [kit] : an event-based science module / Wright, Russell G. -- Menlo Park, Calif. Innovative Learning Publications, Addison-Wesley Pub. Co, c1997.

1 videocassette (8 min.) + 1 teacher's guide (30 p.)

Uses the eruption of Mt. Pinatubo in the Philippine Islands as the focus of a six-week study of earth science concepts. Video titled "CNN's The Mt. Pinatubo eruption" is an 8-minute excerpt from CNN's coverage of the event. Text includes science activities as well as math, social studies and writing activities.

MIDDLE SCHOOL.

VOLCANOES—EXPERIMENTS

Janice VanCleave's volcanoes : mind-boggling experiments you can turn into science fair projects / VanCleave, Janice Pratt. -- New York: Wiley & Sons, c1994.

89 p. : ill. ; 21 cm.

Students can follow step-by-step instructions. Some experiments need adult supervision.

WETLANDS

WOW! : the wonders of wetlands / Kesselheim, Alan S; Slattery, Britt Eckhardt; Higgins, Susan; Schilling, Mark R. -- [New ed.] -- St. Michaels, MD : Bozeman, MT: Environmental Concern Inc. ; The Watercourse, c1995.

xx, 330 p. : ill. ; 28 cm.

Includes background notes and curriculum keys for teachers. Wetland activities for classroom and wetland settings, with interdisciplinary links, assessment questions, and extensions for all grades.

GRADES K-12.